

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 01-272108

(43)Date of publication of application : 31.10.1989

(51)Int.Cl.

H01L 21/203

H01L 21/20

(21)Application number : 63-100082

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(22)Date of filing : 25.04.1988

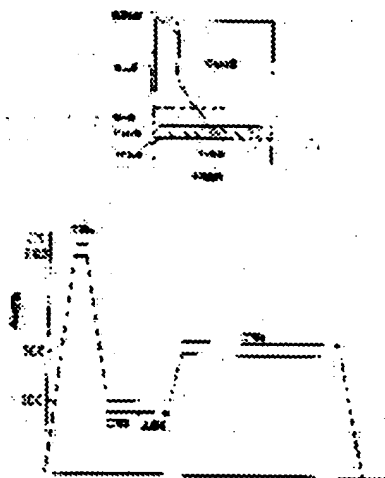
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## (54) GROWTH OF COMPOUND SEMICONDUCTOR

## (57)Abstract:

PURPOSE: To grow a high-quality compound semiconductor whose piercing dislocation has been reduced by a method wherein a temperature of an Si substrate is set to a temperature at which a group V element for buffer layers can be diffused into an atomic layer composed of a group III element for buffer layers the atomic layer is formed by supplying the group III element and, after that, a buffer layer is formed by supplying the group V element.

CONSTITUTION: An Si substrate is cleaned in a vacuum at 900° C; it is kept at 300° C; an As raw material is supplied to the surface of the Si substrate; an As stabilized face constituted of one atomic layer of As is formed. Then, a Ga raw material for five molecular layers is supplied as GaAs; a Ga layer is formed on the As stabilized face of Si. Then, when the As raw material is supplied, an As atom is diffused to the Ga layer; a buffer layer for five molecule layers of GaAs is formed. While a temperature of the substrate is kept at 300° C, the Ga raw material and the As raw material are supplied simultaneously; GaAs with a film thickness of 13nm is formed; then, the temperature of the substrate is raised to 500° C; a GaAs layer with a film thickness of 2  $\mu$ m is grown.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the  
examiner's decision of rejection or application  
converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of  
rejection][Date of requesting appeal against examiner's decision  
of rejection]

[Date of extinction of right]